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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,800	11/30/2000	Radia J. Perlman	P4513	5684

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EXAMINER	
FOX, JAMAL A	

ART UNIT	PAPER NUMBER
2664	4

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/726,800	PERLMAN ET AL.	
	Examiner	Art Unit	
	Jamal A Fox	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2 & 3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5-8 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Perlman (U.S. Patent No. 5,420,862).

Referring to claim 1, Perlman discloses a network device, comprising: Bridging logic operative, when enabled, to function as a data link layer bridge by (i) receiving data link layer messages from first and second communications links coupled to the network device, the first and second communications links forming part of a single network-layer network segment (col. 4 lines 48-56), and (ii) forwarding the messages received from either one of the communications links to the other communications link (col. 4 lines 56-60);

routing logic operative, when enabled, to function as a network layer router by (i) receiving network layer messages from the first and second communications links, the first and second network links forming respective different network-layer network segments (col. 5 lines 3-8), and (ii) selectively forwarding the network layer messages received from either one of the communications links to the other communications link based on a routing algorithm (routing algorithms, col. 9 line 66 – col. 10 line 18 and col.

18 lines 47-59) and respective network layer network addresses in the received network layer messages (col. 5 lines 8-15); and

selection logic (Fig. 1, ref. signs 115 and 117 and respective portions of the spec.; see also, col. 3 lines 47-58) operative during operation of the network device to (i) enable the bridging logic and disable the routing logic under a first set of operating conditions (col. 3 lines 7-9), and (ii) enable the routing logic and disable the bridging logic under a second set of operating conditions (col. 3 lines 10-12).

Referring to claim 5, Perlman discloses a network device according to claim 1, wherein the selection logic is operative to autonomously determine whether the first set operating conditions are met (initiating station tests, col. 5 lines 33-42).

Referring to claim 6, a network device according to claim 1, wherein the selection logic is operative to cooperate with another network device (end stations, col. 5 lines 15-42 and Fig. 1, ref. signs 111A, 111B, and 113 and respective portions of the spec.) in a common network region in determining whether the first set of operating conditions are met.

Referring to claim 7, a network device according to claim 1, wherein the determination of whether the first set of operating conditions are met is made by a separate network device in a common network region, and wherein the selection logic is operative to enable the bridging logic and disable the routing logic in response to a control message (ARP message, col. 4 lines 41-60) received from the separate network device.

Referring to claim 8, a network device according to claim 1, wherein (i) the first and second communications links are part of a group of three or more communications links (Fig. 1 ref. signs 110, 112, 115A and 117A and respective portions of the spec.) coupled to the network device with respect to which bridging and routing functionality can be selected, (ii) the selection logic is further operative in accordance with a predetermined selection algorithm to select the communications links in the group that are to have their respective routing and bridging functions enabled and disabled.

Referring to claim 11, Perlman discloses a method of operating a network device, comprising:

performing the function, when enabled, of a data link layer bridge by (i) receiving data link layer messages from first and second communications links coupled to the network device, the first and second communications links forming part of a single network-layer network segment (col. 4 lines 48-56), and (ii) forwarding the messages received from either one of the communications links to the other communications link (col. 4 lines 56-60);

performing the function, when enabled, of a network layer router by (i) receiving network layer messages from the first and second communications links, the first and second network links forming respective different network-layer network segments (col. 5 lines 3-8), and (ii) selectively forwarding the network layer messages received from either one of the communications links to the other communications link based on a routing algorithm (routing algorithms, col. 9 line 66 – col. 10 line 18 and col. 18 lines 47-

59) and respective network layer network addresses in the received network layer message (col. 5 lines 8-15); and

operation of the network device (Fig. 1, ref. signs 115 and 117 and respective portions of the spec.; see also, col. 3 lines 47-58), (i) enabling the bridge function and disabling the router function under a first set of operating conditions (col. 3 lines 7-9), and (ii) enabling the router function and disabling the bridge function under a second set of operating conditions (col. 3 lines 10-12).

Referring to claim 12, Perlman discloses a computer program product (inherent, see Fig. 1 and respective portions of the spec.) including a computer readable medium, the computer readable medium having a network router/bridge program stored thereon for execution in a computer functioning as a network node, the network router/bridge program comprising:

program code operative, when enabled, to function as a data link layer bridge by (i) receiving data link layer messages from first and second communications links coupled to the network node, the first and second communications links forming part of a single network-layer network segment (col. 4 lines 48-56), and (ii) forwarding the messages received from either on the communications links to the other communications link (col. 4 lines 56-60);

program code operative, when enable, to functions as a network layer router by (i) receiving network layer messages from the first and second communications links, the first and second network links forming respective different network-layer network segments (col. 5 lines 3-8), and (ii) selectively forwarding the network layer messages

received from either one of the communications links to the other communications link based on a routing algorithm (routing algorithms, col. 9 line 66 – col. 10 line 18 and col. 18 lines 47-59) and respective network layer network addresses in the received network layer messages (col. 5 lines 8-15); and

program code (inherent see, Fig. 1, ref. signs 115 and 117 and respective portions of the spec.; see also, col. 3 lines 47-58) operative during operation of the network node to (i) enable the bridge program code and disable the router program code under a first set of operating conditions (col. 3 lines 7-9), and (ii) enable the router program code and disable the bridge program code under a second set of operating conditions (col. 3 lines 10-12).

Referring to claim 13, Perlman discloses a computer data signal including a network router/bridge program (inherent, see Fig. 1 and respective portions of the spec.) for execution in a computer functioning as a network node, the network router/bridge program comprising:

program code operative, when enabled, to function as a data link layer bridge by (i) receiving data link layer messages from first and second communications links coupled to the network node, the first and second communications links forming part of a single network-layer network segment (col. 4 lines 48-56), and (ii) forwarding the messages received from either one of the communications links to the other communications link (col. 4 lines 56-60);

program code operative, when enabled, to function as a network layer router by (i) receiving network layer messages from the first and second communications links,

the first and second network links forming respective different network-layer network segments (col. 5 lines 3-8), and (ii) selectively forwarding the network layer messages received from either one of the communications links to the other communications link based on a routing algorithm (routing algorithms, col. 9 line 66 – col. 10 line 18 and col. 18 lines 47-59) and respective network layer network addresses in the received network layer messages (col. 5 lines 8-15); and

program code (inherent see, Fig. 1, ref. signs 115 and 117 and respective portions of the spec.; see also, col. 3 lines 47-58) operative during operation of the network node to (i) enable the bridge program code and disable the router program code under a first set of operating conditions (col. 3 lines 7-9), and (ii) enable the router program code and disable the bridge program code under a second set of operating conditions (col. 3 lines 10-12).

Referring to claim 14, Perlman discloses a network device (Fig. 1 and respective portions of the spec.), comprising:

means for functioning, when enabled, as a data link layer bridge (Fig. 1, ref. sign 116 and respective portions of the spec.) by (i) receiving data link layer messages from first and second communications links coupled to the network device, the first and second communications links forming part of a single network-layer network segment (col. 4 lines 48-56), and (ii) forwarding the messages received from either one of the communications links to the other communications link (col. 4 lines 56-60);

means for functioning, when enabled, as a network layer router (Fig. 1, ref. sign 114 and respective portions of the spec.) by (i) receiving network layer messages from

the first and second communications links, the first and second network links forming respective different network-layer network segments (col. 5 lines 3-8), and (ii) selectively forwarding the network layer messages received from either one of the communication links to the other communication link based on a routing algorithm (routing algorithms, col. 9 line 66 – col. 10 line 18 and col. 18 lines 47-59) and respective network layer network addresses in the received network layer messages (col. 5 lines 8-15);

and means operative during operation of the network device (Fig. 1, ref. signs 115 and 117 and respective portions of the spec.; see also, col. 3 lines 47-58) for (i) enabling the bridge function and disabling the router function under a first set of operating conditions (col. 3 lines 7-9), and (ii) enabling the router function and disabling the bridge function under a second set of operating conditions (col. 3 lines 10-12).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-4, 9 and 10 rejected under 35 U.S.C. 103(a) as being obvious over Perlman.

The applied reference has a common *--inventor--* with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Referring to claim 2, Perlman discloses a network device according to claim 1, but does not explicitly teach wherein the first set of operating conditions includes the condition that less than a predetermined number of link numbers are available for use as part of a network-layer address prefix for one of the communications links. However, Perlman discloses ARP messages and ARP responses (col. 4 lines 41-60). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the first set of operating conditions including the condition that less than a predetermined number of link numbers are available for use as part of a

network-layer address prefix for one of the communications links so that the bridge can properly forward the ARP message as suggested by Perlman.

Referring to claim 3, Perlman discloses a network device according to claim 1, but does not explicitly teach wherein the second set of operating conditions includes the condition that the number of nodes residing on the first and second communications links collectively exceeds a predetermined threshold number. However, Perlman discloses maintaining a forwarding table (col. 5 lines 3-15). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the second set of operating conditions including the condition that the number of nodes residing on the first and second communications links collectively exceeds a predetermined threshold number because the forwarding table knows all of the nodes on the first and second communication links.

Referring to claim 4, Perlman discloses a network device according to claim 3, but does not explicitly teach wherein the selection logic is operative to track the number of nodes on the first and second communications links, and to autonomously decide to enable the routing logic and disable the bridging logic. However, Perlman discloses maintaining a forwarding table (col. 5 lines 3-15). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the selection logic being operative to track the number of nodes on the first and second communications links, and to autonomously decide to enable the routing logic and disable the bridging logic because the forwarding table tracks the number of nodes on the first and second communication links.

Referring to claim 9, Perlman discloses a network device according to claim 8, but does not explicitly teach wherein the predetermined algorithm for selecting communications links under the first set of operating conditions includes selecting a pair of communications links collectively having fewer attached nodes than any other communications links in the group. However, Perlman discloses a flooding and backward learning algorithm (col. 9 lines 19-37). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the predetermined algorithm for selecting communications links under the first set of operating conditions including selecting a pair of communications links collectively having fewer attached nodes than any other communications links in the group because the bridge uses algorithms that make decisions that forward packets to proper links as suggested by Perlman.

Referring to claim 10, Perlman discloses a network device according to claim 8, but does not explicitly teach wherein the predetermined algorithm for selecting communications links under the second set of operating conditions includes selecting the communications links included in the network segment having more attached nodes than any other network segment defined by communications links in the group. However, Perlman discloses running routing protocols in order to decide on routes to maintain between links when there are multiple routes (col. 10 lines 6-17). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the predetermined algorithm for selecting communications links under the second set of operating conditions including selecting the

communications links included in the network segment having more attached nodes than any other network segment defined by communications links in the group because of the routing algorithms that isolate links as suggested by Perlman.

Conclusion

5. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 305-3988, (for formal communications intended for entry)

Or:

(703) 305-3988 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA. 22202, Sixth Floor (Receptionist).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jamal A. Fox whose telephone number is (703) 305-5741. The examiner can normally be reached on Monday-Friday 6:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (703) 305-4366. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9315 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

J.A.F.

Jamal A. Fox

WELLINGTON CHIN
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